

## Scientific

**THE SUGAR BEET.**  
—  
and Manufacture into Sugar.

OF. C. A. GOESSMANN,  
*Massachusetts Agricultural College.*

—

Seventy-Seventh Annual Report of the  
Board of the Massachusetts State  
Board of Agriculture.]

—

NUMBER III.

— considers a large number of marks an essential property of beet from which to raise seed. As a general rule, absorb atmospheric nitrogen in proportion to their number the sooner they acquire a good root system the more numerous they are, the greater the chances of a copious formation of seed. This apparently depends to

on the supply of atmospheric  
are three distinct periods in  
of the beet; viz., the develop-  
aves, which ends usually in the  
one; the formation of the roots,  
omplished by the middle of  
first part of October; and,  
roduction of the seeds, which  
the second year. The ripe-  
ts is indicated by a change in  
aves from a deep green to a

eties which show a particular growth out of the soil are common. As soon as the leaves have reached a certain size, which happens in ordinarily in the fore part of June, the roots of the plant cease to grow, leaving them un-  
dergrowth. To convey some of the peculiar features in the growth of the plant, I have here

| Weight of the Root. | Weight of the Leaves | Prop'n betw'n Root & Leaves. | Perct' age of Sugar |
|---------------------|----------------------|------------------------------|---------------------|
| 0.2006              | —                    | —                            | 2.13                |
| —                   | —                    | —                            | 17                  |

|          |       |           |       |
|----------|-------|-----------|-------|
| 78,3000  | 286.0 | 1 to 3.55 | 4.99  |
| 109,5000 | 226.0 | 1 to 2.06 | 8.96  |
| 165,0000 | 224.0 | 1 to 1.34 | —     |
| 124,0000 | 105.0 | 1 to 1.56 | 11.27 |
| 225,0000 | 191.0 | 1 to 0.45 | 11.59 |
| 585,0000 | 346.0 | 1 to 0.59 | 11.45 |
| 169,0000 | 88.0  | 1 to 0.22 | 10.80 |
| 204,0000 | 40.0  | 1 to 0.15 | 13.15 |

any vary from the fore part of the first of October. Pulling out, even in part, at any preceding time, retards the growth of the plants, is injurious to, for it affects most detrimental yield of sugar. Nature, in the economy of matter and force, provides for the continuance of the life of the plant, and for the most advantageous coning up in some of the organs of the plant, the influence of a favorable season.

perature, a maximum of such  
s will enable them to develop  
for propagation almost inde-  
pendent assistance. The flowers,  
mently the seeds, draw upon the  
ulated in roots, stalks, and  
the seeds themselves again store  
ment to enable the embryonic  
side itself with such organs as  
fulfill its mission in the produc-  
x plant. Sugar is undeniably

substances which are required by the beet-root plant in this last growth. The addition of sugar to the root has just attained its maximum. Consequently, it diminishes gradually in the sequence of advancing growth. Undiminished the maximum percentage of sugar till the time of manufacture is difficult. There is no such

are as absolute rest. If it were to keep the beet-root frozen beginning to the close of the manasson, it might prove to be the best mode, so far as the preservation is concerned. The manufacture begins usually in the latter part of June; and the beet-roots are daily taken in such quantities from the fields as can be disposed of. Those varieties, such as the red and the white, and the norin beets, which do not keep

pits over winter, are first gathered up. As soon as frost becomes, all the roots are gathered and the leaves, which are buried on upon the fields. They are buried in suitable pits without loss. The beets are raised out of the pits with forks, and the leaves cut with sharp knives about one-half to three-quarters of an inch from the root. To cut off the top of the roots from those which are to be

inter is disapproved of. The use of the fork in harvesting is also objectionable on account of frequent laceration of the roots, after being freed from the soil in the manner just described, are placed in a layer of covering soil, laid carefully into rows about six feet long by three feet wide and from four to five feet in depth. The rows are finally covered with soil to protect them from frost.

against frost. Small pits of the described are preferred; for they after control of the temperature pits, which frequently suffer from a considerable increase of heat, causing the leaves, or degeneration by decay. The layer of soil is gradually increased as with the advancing season, usually to a final thickness of 10 cm. and this is sometimes rendered more stable by a thin outer layer of stable

to secure a uniform moderate temperature is the sole object of these profound pits beginning to heat are without delay. The pits must be in very dry land on or near the surface and in such a position that no rain or water can injuriously affect them.

Some idea about the changes undergone by sugar-beet undergos in the underground, quite favorable circum-

|       |       |
|-------|-------|
| ..... | 3.49  |
| ..... | 82.06 |
| ..... | 12.40 |
| ..... | 0.75  |
| ..... | 1.30  |

|                                   |              |
|-----------------------------------|--------------|
|                                   | 100.00       |
| ary, 1863:—                       |              |
|                                   | Per cent.    |
| .....                             | 2.52         |
| .....                             | 84.36        |
| F.....                            | 10.60        |
| ar.....                           | 0.65         |
| onstituents.....                  | 0.63         |
| us and extractive substances..... | 1.20         |
|                                   | <hr/> 100.00 |

The loss due to the sprouting may amount to two per cent the preceding analysis states.

**FIELD OF SUGAR-BEETS.**

merous varieties of beets differ regard to their annual yield, in of the conditions of season, upon soil and under the same treatment. mmon mangels have been raised

able soil, in exceptional cases, at from ninety-four to one hundred bushels per acre, the sugar-beet never does anything like such a rate. The







NEWS SUMMARY.

The late Peter Smith, of Andover, bequeathed over \$50,000 to various religious and benevolent societies. The estate being settled, a population of 12,000, which makes it the largest in the State.

Thomas Fisher, of Sandwich, was thrown from a carriage, the other day, and his horse killed.

Seventy children and ten adults died at New York in the contagious fever outbreak at that city on Sunday.

Henry Joselyn, an old and respected citizen of New York, died on Sunday, Saturday, and was buried in the city of New York.

Charles W. Warren, a well-known lawyer, died on Sunday, Saturday, and was buried in the city of New York.

Mr. Brown, on trial at Indianapolis, Ind., for the murder of his wife, was convicted on the 16th of murder in the first degree, and the death sentence imposed.

At Baltimore, Edward Hartman, a German, was arrested for throwing water into the eyes of a woman, and was committed to the city prison.

There was considerable damage done to crops in the State on Sunday, by a heavy rain.

At New York, a man named John, who was charged with the murder of a woman, was acquitted on the 16th.

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